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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/732,929	12/11/2003	Tieyu Zheng	P17131	7298
21186	7590	09/06/2006	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			MOONEY, MICHAEL P	
			ART UNIT	PAPER NUMBER
			2883	

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/732,929

Applicant(s)

ZHENG, TIEYU

Examiner

Michael P. Mooney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 21-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-12 and 21-29 is/are rejected.
- 7) ☒ Claim(s) 7-9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 15 June 2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings were received on 6/15/06. These drawings are accepted.

Specification

The examiner accepts the 6/15/06 amendment to the Specification.

Response to Arguments

Applicant's arguments filed 6/15/06 have been fully considered but they are not persuasive. It is Applicant's 6/15/06 *amendment* of the independent claims that distinguishes the instant invention over Rechberger et al. in the case of instant claim 21, but not in the case of instant claim 1. Allowability of the instant claims over Rechberger et al. does not hinge on Applicant's statements that Rechberger et al. allegedly "teaches away" from hermetic sealing. The phrases "not requiring" and "teaching away" have different meanings from one another.

Furthermore, paragraph 0062 of Rechberger et al. teaches "hermetically sealed". This is quite the opposite of "teaching away" from hermetically sealing as asserted by Applicant.

Additionally, it is, once again, Applicant's *amendment* to the claim(s) that allows for the distinguishing over Rechberger et al. in the case of claim 21. For example, it is acknowledged that the new addition to claim 21 of "coupled to vias on a lower surface of the insulating base" when referring to the "leads" makes it clear where the leads are located and does indeed distinguish over Rechberger et al, which does teach away from leads located where typical TO can header pins normally are located.

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Regarding newly amended claim 1, however, the newly added language "wherein the insulating base is adapted to dissipate heat away from the optoelectronic assembly" does not patentably distinguish over Rechberger et al. The reasons for this are detailed in the 103 rejection infra.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 10-12, 21-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Narayan et al. (6860652).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Narayan et al. teaches an optoelectronic package (e.g., figs. 1-4) comprising: an insulating base (col. 3 lines 29-35; fig. 1) having an upper surface (e.g., figs. 3-4), wherein the insulating base is adapted to dissipate heat away from the optoelectronic assembly (col. 3 lines 29-35); an optoelectronic device mounted on the upper surface of the insulating base (e.g., figs. 4a-4b); a metal layer attached to the upper surface of the insulating base (e.g., col. 4 lines 48-57); and a metal cap having a rim located at a bottom portion thereof (col. 13 lines 5-15); wherein the metal cap encloses the optoelectronic device and the rim of the metal cap is adapted to attach to the metal layer sealing member to hermetically seal the metal cap to the insulating base (col. 13 lines 5-15; figs. 4a-4b).

Thus claim 1 is met.

Narayan et al. teaches wherein the insulating base has an external surface on the outside of the optoelectronic package (e.g., figs. 1-4). Thus claim 2 is met.

Narayan et al. teaches a plurality of vias running from an exterior of the optoelectronic package through the insulating base into an interior of the optoelectronic package (e.g., col. 12 lines 60-68). Thus claim 3 is met.

Narayan et al. teaches wherein the plurality of vias are electrically coupled to the optoelectronic device (e.g., col. 12 lines 60 to col. 13 line 11). Thus claim 4 is met.

Narayan et al. teaches wherein the plurality of vias are held in place by solder (col. 5 lines 4-10). Thus claim 5 is met.

Narayan et al. teaches wherein the optoelectronic device is mounted on a submount that is mounted on the upper surface of the insulating base (fig. 4b). Thus claim 6 is met.

Narayan et al. teaches wherein the optoelectronic device is an optical transmitter and/or optical receiver (figs. 4a-4b). Thus claim 10 is met.

Narayan et al. teaches wherein the metal layer comprises a metallization layer at least partially covering a top surface of the insulating base (e.g., col. 4 lines 48-57). Thus claim 11 is met.

Narayan et al. teaches wherein the metal layer further comprises a metal sealing member coupled to the metallization layer (figs. 4a-4b). Thus claim 12 is met.

Narayan et al. teaches an insulating base having an upper surface (e.g., fig. 4b); an optoelectronic device mounted on the upper surface of the insulating base (e.g., fig. 4b); a metal cap hermetically sealed to the upper surface of the insulating base to enclose an optoelectronic device (e.g., fig. 4b); and a plurality of electrical leads coupled to a first set of vias on a lower surface of the insulating base (e.g., fig. 2), the vias running through the insulating base into an interior of the optoelectronic package (e.g., col. 12 lines 60-68), wherein the electrical leads are electrically coupled to the optoelectronic device (e.g., col. 12 lines 60 to col. 13 line 11). Thus claim 21 is met.

Narayan et al. teaches including a metal layer attached to the upper surface of the insulating base; and wherein the metal cap includes a metal rim to attach to the metal layer to hermetically seal the metal cap to the insulating base (col. 13 lines 5-15; figs. 4a-4b). Thus claim 22 is met.

Narayan et al. teaches wherein the insulating base is coupled to a heat sink (Col. 4 lines 3-23). Thus claim 23 is met.

Narayan et al. teaches wherein a housing of the optoelectronic package serves as a heat sink. It is noted that a metal cap, which is part of the housing of the optoelectronic device is inherently a heat sink in the disclosed design of Narayan et al. (e.g., figs 4a-4b; Col. 4 lines 3-23). Thus claim 24 is met.

Narayan et al. teaches wherein the insulating base comprises ceramic. (Col. 3 lines 50-55). Thus claim 25 is met.

Narayan et al. teaches wherein the insulating base comprises one of alumina, beryllium oxide and aluminum nitride. (Col. 3 lines 50-55). Thus claim 26 is met.

Narayan et al. teaches wherein the insulating base is substantially planar. (figs. 1-4). Thus claim 27 is met.

Narayan et al. teaches wherein the metal cap includes a transparent portion. (figs. 1, 4a-4b). Thus claim 28 is met.

Narayan et al. teaches including a second set of vias (fig. 2), formed through the insulating base, adapted to conduct welding current from the metal cap to the insulating base during a welding operation to hermetically seal the metal cap to the insulating base (e.g., col. 12 lines 60 to col. 13 line 21; col. 14 lines 19-25; fig. 2; figs. 4a-4b; col. 4 lines 29-35; col. 4 lines 41-48). Thus claim 29 is met.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 6, 10-12, 25-28 are rejected under 35 U.S.C. 103a as being unpatentable over Rechberger et al. (20040240803).

Rechberger et al. teaches an optoelectronic package (e.g., fig. 2) comprising: an insulating base 30 having an upper surface.

Although Rechberger et al. does not expressly state "wherein the insulating base is adapted to dissipate heat away from the optoelectronic assembly", it would have been obvious to do so because at paragraph 37 Rechberger et al. does teach:

the direct mounting of optical module 28 on substrate 30 and the subsequent elimination of the TO header pins 26 also provides for improved high speed performance, as well as improved thermal, and EMI performance over conventional packaging techniques..." [emphasis added].

The latter quote clearly associates improved thermal performance with:

- 1) the unique module/substrate direct interface design of Rechberger et al. and
- 2) the elimination of the TO header pins.

Both “1)” and “2)” above clearly involve an adaptation of the insulating base 30 when compared to conventional TO header designs (e.g., see fig. 3). For such an improved thermal performance to occur as a result of modifications in the structure of conventional TO header design(s), such as depicted by said “1)” and/or “2)” above, heat must inherently be dissipated away from the optoelectronic assembly.

Therefore, it can unequivocally be stated that it would have been obvious for Rechberger to state “wherein the insulating base is adapted to dissipate heat away from the optoelectronic assembly” since Rechberger has clearly adapted the design of a conventional header/substrate to have interfaces that improve thermal characteristics. Furthermore, in order for physical interfaces as described by said “1)” and/or “2)” to improve thermal characteristics there must be improved heat dissipation away from the optoelectronic assembly that results from the improved adaptations that Rechberger et al. has made to the typical TO can header/substrate physical interface design.

One of ordinary skill at the time the invention was made would have been motivated to state “wherein the insulating base is adapted to dissipate heat away from the optoelectronic assembly” regarding Rechberger et al.’s design in order to state the improved inherent heat-dissipating thermal characteristics disclosed at, e.g., Rechberger et al. paragraph 0037 & fig. 3, in a different way.

Furthermore, Rechberger et al. teaches an optoelectronic device (e.g., but not limited to element 12) mounted on the upper surface of the insulating base; a metal layer 38 attached to the upper surface of the insulating base 30; and a cap 16 having a rim located at a bottom portion thereof, wherein the cap encloses the optoelectronic device and the rim of the cap 16 is adapted to attach to the metal layer to hermetically seal the metal cap to the insulating base.

Although Rechberger et al. does not explicitly state that the cap 16 is "metal", it would have been obvious to do so because it is conventionally known to use metal caps on TO cans, especially for processes taught in Rechberger et al. such as resistance welding.

One of ordinary skill would have been motivated to explicitly state "metal cap" for the purpose of stating aspects of the invention, which are conventional to those of ordinary skill in the art, to those who may not have ordinary skill in the art.

Thus claim 1 is rejected.

Rechberger et al. teaches wherein the insulating base has an external surface on the outside of the optoelectronic package (e.g., fig. 2). Thus claim 2 is rejected.

Rechberger et al. teaches further comprising: a plurality of vias running from an exterior of the optoelectronic package through the insulating base into an interior of the optoelectronic package (e.g., figs. 3, 4). Thus claim 3 is rejected.

Rechberger et al. teaches wherein the plurality of vias are electrically coupled to the optoelectronic device (e.g., figs. 3, 4). Thus claim 4 is rejected.

Rechberger et al. teaches wherein the optoelectronic device is mounted on a submount that is mounted on the upper surface of the insulating base. (e.g., figs. 2, 3, 9, 10). Thus claim 6 is rejected.

Rechberger et al. teaches wherein the optoelectronic device is an optical transmitter and/or optical receiver. (e.g., figs. 2, 3, 9, 10). Thus claim 10 is rejected.

Rechberger et al. teaches wherein the metal layer 38 comprises a metallization layer 45 at least partially covering a top surface of the insulating base. (e.g., figs. 2-4). Thus claim 11 is rejected.

Rechberger et al. teaches wherein the metal layer further comprises a metal sealing member coupled to the metallization layer. (e.g., figs. 2-4). Thus claim 12 is rejected.

Rechberger et al. teaches wherein the insulating base comprises ceramic (paragraphs 0003, 0052). Thus claim 25 is rejected.

Although Rechberger et al. does not explicitly state "wherein the insulating base comprises one of alumina, beryllium oxide and aluminum nitride" it would have been obvious to do so because it is conventionally known to use alumina, beryllium oxide and aluminum nitride in the type(s) of ceramic substrates used in Rechberger et al. One of ordinary skill in the art would have been motivated to use an insulating base comprising one of alumina, beryllium oxide and aluminum nitride for the purpose of conforming to conventionally used techniques in order to have a higher probability of producing a reliable, functioning product. Thus claim 26 is rejected.

Rechberger et al. teaches wherein the insulating base is substantially planar (e.g., fig. 2). Thus claim 27 is rejected.

Rechberger et al. teaches wherein the metal cap includes a transparent portion (e.g., fig. 2). Thus claim 28 is rejected.

Allowable Subject Matter

Claims 7-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art, either alone or in combination, does not disclose or render obvious wherein the metal layer extends at least partially past a top surface perimeter of the insulating base to expose a bottom surface of the metal layer in combination with the rest of claim 7.

It is noted that the claim 7 is allowable because the unique combination of each and every specific element stated in the claim.

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 6/15/06 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Furthermore, Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Mooney whose telephone number is 571-272-2422. The examiner can normally be reached during weekdays, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael P. Mooney
Examiner
Art Unit 2883



Frank G. Font
Supervisory Patent Examiner
Art Unit 2883

FGF/mpm
8/30/06